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EXAMINER

DINH, PAUL

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 01/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

#15

# Office Action Summary

Application No.

09/476,416

Applicant(s)

PYO ET AL.

Examiner

Paul Dinh

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

This is a response to the applicant remarks filed on 12-10-02. The remarks are not persuasive, the prior art still reads on the claims; therefore, the previous art rejections are retained and repeated for the following reasons.

***Drawings***

The drawings filed on 12-30-990 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948 (paper # 13). In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(e) The invention was described in-*

*(1) An application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or*

*(2) A patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).*

Claims 1-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Raman et al. (USP 5987086). Raman discloses a method/apparatus/medium comprising:

(Claims 1-2, 9, 15, 20, 22, 27)

identifying partial feasible routing solutions corresponding to each of a subset of wires to be routed (c25 or c37 or fig 28 and/or 29 and/or 30 and/or 31 and/or 33);

merging the partial feasible routing solutions to identify one or more feasible routing solutions for the set of wires to be routed (c36: 36+ or c37 or fig 28 and/or 29 and/or 30 and/or 31 and/or 33).

*(Note that the limitations:*

*a. "a maze router" and "a deferred merging router" in claim 22 are merely the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed limitation. Just for the applicant information, Raman teaches a Maze router in c36: 35+; and*

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b. *"that do not conflict" in claim 15 is merely a result; therefore, it cannot be relied upon to define over prior art that meets the claimed limitation. Just for the applicant information, Raman teaches in fig 28, 30, the feasible routing solutions or possible routes performed without conflicts (by the verification/decision/check blocks as shown)*

(Claims 3-4, 16, 21, 28-29) fig 1 or 6 teaches user and Col 37 and/or fig 10 or 12 or 15-16 or 19 or 28 or 33 teaches user and cost function. Note that the limitations *"first/second user/one or more users"* are merely the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed limitation.

(Claims 5, 17, 30) Col 37 or software/algorithms used fig 1 or 6 or 17 or 28 or 29 teach routing solutions are limited to a first and a second numbers.

(Claim 6) C37: 40+ and/or fig 1 or 6 and its software/algorithms used fig 1 or 6 or 17 or 28 or 29 teaches the limitation in claim 6.

(Claims 7, 11) C35: 39, c41: 41+, c42: 16+ and/or c43: 42+ and/or fig 43-44 teaches the limitation in claim 7. Note that *"Hanan"* is merely the intended use; therefore, it cannot be relied upon to define over prior art that meets the claimed limitation.

(Claim 8) C37 or fig 8 or 30 or 40 teaches the limitation in claim 8

(Claim 10) C37 or fig 6 and/or fig 28 and/or fig 30 teaches the limitation in claim 10

(Claims 12-14, 19, 26) C37: 40+ and/or C25: 10+ and/or c35-36 and/or fig 10, 12 or 19 teach routing solution by the cost. Note that the limitations *"first/second user/engine or one or more users"* are merely the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed limitation.

(Claim 18) fig 40 or c44: 13 show a tree structure.

(Claim <sup>23</sup>23) col 17 and/or 37-38 teaches the limitation in claim <sup>23</sup>23. <sup>26</sup>

(Claims 24-25) the maze router and the deferred merging router are *merely* the intended use; therefore, they cannot be relied upon to define over prior art that meets the claimed limitation.

### ***Response to the Applicant remarks***

The applicant remarks state that the independent claim 1 and similarly recited independent claims 9, 15, 20, 22, 27 include the limitation:

"identifying partial feasible routing solutions corresponding to each of a subset of wires to be routed;  
merging the partial feasible routing solutions to identify one or more feasible routing solutions for the set of wires to be routed."

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And the applicant states that, according to the specification beginning at page 4 line [2] 22, “A *partial feasible routing solution*, as the term is used herein, refers to an intermediate routing solution for fewer than all of the wires to be routed. A routing solution is feasible if it defines a route between the desired terminals or pins while avoiding obstacles and otherwise meeting specified design rules.”

and the prior art does not teach or suggest partial feasible routing solutions and the step of merging the partial feasible routing solutions as recited in the claims.

Here are the examiner answers:

First, the intended use of terminology by the applicant cannot be relied upon to define over prior art that meet the claimed limitations.

Second, although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Third, even if the above-mentioned specification is specified in the claims, the prior art still reads on the claims.

Now turning to the prior art, specifically, Raman teaches the partial feasible routing solutions in:

Column 25 (**local** routing solutions = partial feasible routing solutions since **local** routing solution is a routing solution for fewer than all of the wires to be routed), or

Fig 28-29 (the routing of channels and/or adjacent transistor routing and/or power and ground and/or gate & source/drain and/or special nets = partial feasible routing solutions since these routing solutions are routing for fewer than all of the wires to be routed).

Raman also teaches merging the partial feasible routing solutions (fig 28-30) to identify one or more feasible routing solutions (step 1414 (pick best solution) and/or step 1612 (routing solution) = feasible routing solutions since these steps teach a routing solution between terminals or pins while avoiding obstacles (c35: 39, c71: 51-52) and otherwise meeting specified design rules (examples of design rules are spacing/layers/areas/regions/costs/directions/lengths/vias/channels/density/critical nets/special nets/grids/speed criteria/slack/timing/parasitic/process technology, etc. as taught by Raman).

Regarding the routing tree that the applicant argues that the reference Raman fails to teach, here is the answer, Raman clearly teaches in fig 40-42 the routing tree, and these trees/sub-trees in fig 40-42 are for routing.

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*Conclusion*

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is (703) 305-5662. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (703) 308-1323. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number 703-308-1782.

Paul Dinh

Patent Examiner

January 6, 2003



MATTHEW SMITH  
SUPERVISORY PATENT EXAMINER  
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